

In response to previous rejection of claim 10 under 35 USC § 112, said claim has been cancelled without prejudice and there is no longer an issue under 35 USC § 112.

The Examiner previously rejected claims 23-31 under 35 USC § 103. In this ground of rejection, the Examiner rejected these claims as being unpatentable over Pope et al U.S. Patent No. 6,221,263 (Pope '263) in view of Williams et al U.S. Patent No. 6,183,646 (Williams '646) and in further view of Loucks U.S. Patent No. 3,084,076 (Loucks '076), Singh U.S. Patent No. 5,512,249 (Singh '249) and Ludwig et al U.S. Patent No. 6,076,536 (Ludwig '536). The Examiner's reasoning for obviousness is that one of ordinary skill in the art would have been motivated to combine the teaching of Pope '263 with the other cited references to arrive at applicant's claims. Applicant respectfully disagrees.

Highlighted essential steps of main claim 23 are as follows:

23. (AMENDED) A method for **steam sterilizing a fire sprinkler system** comprising

**isolating a section of a water distribution pipe in a fire sprinkler system for the delivery of steam**, wherein said water distribution pipe includes a plurality of heat-sensitive sprinkler heads and contains water,

**removing the water from said section of the system,**

**utilizing a temperature sensor** to detect the temperature at a position in said section of the system,

**inactivating the sprinkler heads** during the delivery of the steam by removing said sprinkler heads and replacing them with temporary fittings,

**delivering said steam** into said section for a duration at a temperature and in an amount sufficient to kill microorganisms and sterilize the section, and

**returning said sterilized section** in the system to operation.

With respect to the above independent claim 23, and all claims 24-31 depending therefrom, the Examiner has admitted that none of the references teach essential steps. It is admitted that Pope '263 does not relate to steam sterilization, let alone the recited steps in main claim 23 including removing the water, utilizing temperature sensors, inactivation of sprinkler heads, delivering steam for a duration at a temperature to kill microorganisms to sterilize a section before returning the sterilized section to operation. It is submitted that in view of the admitted failure to disclose any of the essential steps, Pope '263 is totally deficient as a primary reference.

Williams '646 admittedly does not teach steam sterilization or the inactivation of sprinkler heads, or the use of temperature sensors which are among the essential features of applicant's method. Williams '646 only discloses the use of an antimicrobial gas such as ozone or chlorine in aqueous solution to control

organisms and water feed stock for various facilities. Accordingly, Williams 646 is totally deficient as a subsidiary reference and does not make up for any deficiencies of Pope '263.

Loucks '076 is directed to the use of steam and additives to dislodge deposits from surfaces. Admittedly, Examiner has stated that Loucks '076 does not teach applicant's method of inactivating sprinkler heads, the use of temperature sensors and the use of steam for sterilizing a fire sprinkler system. Accordingly, Loucks '076 fails to add any significance to the primary reference being relied upon.

Singh '249 employs steam to sterilize a transfer conduit, not a complex fire sprinkler system. While Singh does teach a temperature sensor/discharge valve at the end of the transfer line, it does not teach the use of temperature sensors to insure sterilization of his conduit, let alone the complex fire sprinkler system that is isolated according to applicant's method with the inactivation of sprinkler heads, the use of temperature sensors in the isolated section and sterilizing the section, followed by returning the section in the system to operation.

Ludwig '536 is a patent of the named inventor herein. Applicant's '536 patent is directed to chemical cleaning that cannot guarantee a sterilized pipe system. This patent is directed to chemically cleaning and passivating (not sterilizing) water pipe for a period of time and establishing a passivating surface.

Biocides may also be employed in water systems after cleaning and passivating. However, passivation is not sterilization. Furthermore, the Examiner's reference to the use of a second sterilized gas at column 2, line 40, is in error. Accordingly, there is no suggestion in Ludwig '536, as has been acknowledged by the Examiner, for sterilizing a sprinkler system let alone with steam upon the inactivation of sprinkler heads and delivery of steam into isolated sections to kill microorganisms and returning sterilized sections of the system to operation.

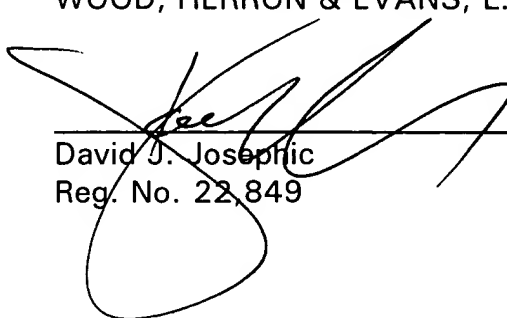
In view of the above analysis and the recognition of the Examiner of the deficiencies in the references cited, it is respectfully submitted that claims 23-31 are indeed patentable, and their allowance is respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE.**"

If any further issue arises, the Examiner is encouraged to contact the undersigned attorney.

Respectfully submitted,

WOOD, HERRON & EVANS, L.L.P.



David J. Josephic  
Reg. No. 22,849

2700 Carew Tower  
Cincinnati, OH 45202  
PH: (513) 241-2324  
FX: (513) 421-7269

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS**

Claim 23 has been amended as follows:

29. (AMENDED) A method for [thermally] steam sterilizing a fire sprinkler system comprising

isolating a section of a water distribution pipe in a fire sprinkler system for the delivery of steam, wherein said water distribution pipe includes a plurality of heat-sensitive sprinkler heads and contains water,

removing the water from said section of the system,

utilizing a temperature sensor to detect the temperature at a position in said section of the system,

inactivating the sprinkler heads during the delivery of the [heated gas] steam by removing said sprinkler heads and replacing them with temporary fittings,

delivering said steam into said section for a duration at a temperature and in an amount sufficient to kill microorganisms and sterilize the section, and

returning said sterilized section in the system to operation.